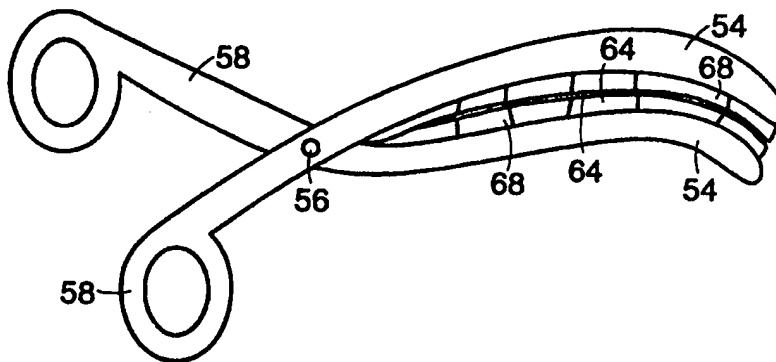




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>6</sup> :</b> <b>A61B 17/39</b>	<b>A3</b>	<b>(11) International Publication Number:</b> <b>WO 99/59486</b> <b>(43) International Publication Date:</b> 25 November 1999 (25.11.99)
<b>(21) International Application Number:</b> PCT/US99/11164 <b>(22) International Filing Date:</b> 20 May 1999 (20.05.99)  <b>(30) Priority Data:</b> 09/082,047      20 May 1998 (20.05.98)      US  <b>(71) Applicant:</b> NEW ENGLAND MEDICAL CENTER [US/US]; 750 Washington Street, Boston, MA 02111 (US).  <b>(72) Inventors:</b> WANG, Paul, J.; 209 Middlesex Road, Chestnut Hill, MA 02467 (US). RASTEGAR, Hassan; 102 Garland Road, Newton, MA 02159 (US).  <b>(74) Agent:</b> MOORE, Ronda, P.; Testa, Hurwitz & Thibault, LLP, High Street Tower, 125 High Street, Boston, MA 02110 (US).		<b>(81) Designated States:</b> AU, CA, JP, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).  <b>Published</b> <i>With international search report.</i>  <b>(88) Date of publication of the international search report:</b> 6 April 2000 (06.04.00)
<b>(54) Title:</b> SYSTEM FOR CARDIAC ARRHYTHMIAS TREATMENT BY ABLATION, AND TMR  <b>(57) Abstract</b> <p>A medical device, and related method, use epicardial ablaters and detectors for intraoperative epicardial approaches to ablation therapy of cardiac conduction pathways. An epicardial gripper is sized to grasp the cardiac circumference or smaller structures on the epicardial surface of the heart. Ablators are disposed on the arms of the gripper for epicardial ablation of cardiac conduction tissue. In another embodiment of the invention, an electrode system includes a flexible, adjustable probe forming a loop for epicardial ablation. Ablators are provided on one or multiple surfaces of the probe for epicardial ablation of cardiac conduction tissue. In yet another embodiment of the invention, an endocardial ablator detection system provides an indicator adjacent an ablator on an endocardial catheter, and a detector on an epicardial probe. The epicardial probe detects signals transmitted by the indicator on the endocardial catheter to localize the position of the endocardial ablator relative to the epicardial surface. The surgeon uses this information for guidance in adjusting the position of the endocardial ablator according to therapeutic objectives of cardiac ablation.</p>		



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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/11164

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 6 A61B17/39

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 A61B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 443 463 A (STERN ROGER A ET AL) 22 August 1995 (1995-08-22) page 6, line 9-30 ---	1,3,13, 14
X	WO 96 26675 A (BOSTON SCIENT CORP) 6 September 1996 (1996-09-06) page 16, line 10-17; figure 5 abstract -----	1,3,8,10

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*Z\* document member of the same patent family

Date of the actual completion of the international search

22 September 1999

Date of mailing of the international search report

10.01 2000

Name and mailing address of the ISA

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PAPONE, F

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 99/ 11164

## Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 20-25, 51, 52, 65-68  
because they relate to subject matter not required to be searched by this Authority, namely:  
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by surgery
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

1. Claims: 1-19

a gripper device for cardiac ablation

2. Claims: 26-50,53

electrode system having a flexible substrate closed loop

3. Claims: 54-64

system for detecting location of endocardiac ablator

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 99/11164

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